

No.

200100174



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Minnesota Agricultural Experiment Station
And University of Minnesota

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW, IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN MAKING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE VARIETY. (U.S. STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'BM-7'

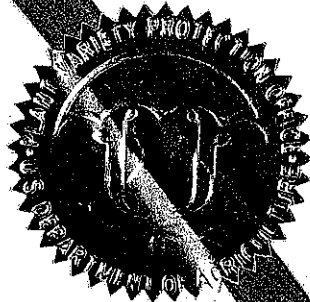
In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this twelfth day of September, in the year two thousand one.

Attest:

P. M. Jackson

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

W. H. Henshaw
Secretary of Agriculture



REPRODUCE LOCALLY. Include form number and date on all reproductions

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2428).

1. NAME OF OWNER Minnesota Agricultural Experiment Station University of Minnesota		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME M91-467	3. VARIETY NAME BM-7
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) 277 Coffey Hall 1420 Eckles Avenue St. Paul, MN 55108		5. TELEPHONE (include area code) 612-625-4211	FOR OFFICIAL USE ONLY PVPO NUMBER 010017600 FILING DATE 4/13/2001
		6. FAX (include area code) 612-624-7724	
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) University	8. IF INCORPORATED, GIVE STATE OF INCORPORATION	9. DATE OF INCORPORATION	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) J.H. Orf Department of Agronomy and Plant Genetics University of Minnesota 1991 Upper Buford Circle 411 Borlaug Hall St. Paul, MN 55108-6026			FILING AND EXAMINATION FEES: \$ 2,705.00 DATE 4/13/2001 CERTIFICATION FEE \$ 320.00 DATE 6/19/01
11. TELEPHONE (Include area code) 612-625-8275	12. FAX (Include area code) 612-625-1268	13. E-MAIL orfx001@tc.umn.edu	14. CROP KIND (Common Name) Soybean

18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)

- a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of Variety
d. ☐ Exhibit D. Additional Description of the Variety (Optional)
e. ☒ Exhibit E. Statement of the Basis of the Owner's Ownership
f. ☒ Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)
g. ☒ Filing and Examination Fee (\$2,705), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)

19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? See Section 83(a) of the Plant Variety Protection Act

- ☒ YES (If "yes", answer items 20 and 21 below) ☐ NO (If "no", go to item 22)

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? ☒ YES ☐ NO

IF YES, WHICH CLASSES? ☒ FOUNDATION ☐ REGISTERED ☒ CERTIFIED

21. DOES THE OWNER SPECIFY THAT THE CLASSES BE LIMITED AS TO NUMBER OF GENERATIONS? ☒ YES ☐ NO

IF YES, SPECIFY THE NUMBER 1, 2, 3, etc. FOUNDATION REGISTERED CERTIFIED

(If additional explanation is necessary, please use the space indicated on the reverse.)

22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?

- ☐ YES ☒ NO

IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)

23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)?

- ☐ YES ☒ NO

IF YES, GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)

24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER

Beverly R. Duge

NAME (Please print or type)

Beverly R. Duge

CAPACITY OR TITLE

Associate Dean

DATE

5/9/01

SIGNATURE OF OWNER

NAME (Please print or type)

CAPACITY OR TITLE

DATE

Exhibit A

200100174

Origin and Breeding History of BM-7 Soybean

'BM-7' soybean traces to the F_5 progeny of an F_4 plant harvested from a population that had been advanced by a modified single seed descent procedure from the cross Minnatto x M87-926. M87-926 is a selection from the cross Chico x PI437296. Bulk seed of the F_5 row was designated M91-467. The bulked F_5 seed of M91-467 was used for yield testing in the F_6 (1992) in North Dakota. Subsequent tests of strain M91-467 were conducted in North Dakota in the F_7 (1993) and F_8 (1994). Additional tests were conducted in Minnesota in the F_9 through F_{14} generations (1995-2000). In the F_{12} generation (1998) 50 typical plants were harvested individually to initiate purification for observable traits including reaction to race 1 of phytophthora. In 1999 thirty rows were grown for purification purposes. After observations in the field and testing in the greenhouse for resistance to race 1 of phytophthora, twenty rows were bulked to provide breeder seed. In the F_{14} (winter 1999-2000) a small increase of breeder seed was made in Chile. In the F_{15} (2000) foundation seed was produced by the Minnesota Foundation Seed Organization. In November 2000 M91-467 was approved for release as BM-7. No off types were noted in the seed multiplication process of BM-7. This variety breeds true and meets certification standards.

2001001749

Exhibit B

Statement of Distinctiveness

'BM-7' soybean is most similar to UM-3 soybean. BM-7 is approximately one day later in maturity than UM-3. BM-7 has about 8% higher yield than UM-3. The lodging scores are similar. BM-7 is about three inches taller than UM-3. Seed of BM-7 is about 0.9 grams per 100 seed larger than UM-3. BM-7 has similar protein content and 0.5 percent lower oil content compared to UM-3. Seed of both BM-7 and UM-3 have yellow hila. BM-7 has gray pubescence while UM-3 has tawny pubescence. BM-7 has brown pods while UM-3 has tan pods. BM-7 and UM-3 both have white flowers. BM-7 has resistance to race 1 of the phytophthora while UM-3 is susceptible.

Data comparing BM7 is taken from Minnesota tests 1995-2000 (a total of 11 tests for most traits).

Variety	Date Mature	Yield bu/A	Height (inches)	Lodging Score	Seed Size g/100	Protein %	Oil %
BM-7	9/17	34.7	25	1.7	8.8	33.9	17.0
UM-3	9/18	32.0	22	1.7	7.9	33.8	17.5

REPRODUCE LOCALLY. Include form number and date on all reproductions.

Form Approved - OMB No. 0581-0055

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this collection of information is (0581-0055). The time required to complete this information collection is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT C
(Soybean)

OBJECTIVE DESCRIPTION OF VARIETY
SOYBEAN (*Glycine max* (L.) Merr.)

NAME OF APPLICANT(S) Minnesota Agricultural Experiment Station-University of Minnesota	FOR OFFICIAL USE ONLY 20010017
ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) 277 Coffey Hall 1420 Eckles Ave. St. Paul, MN 55108	CVPO NUMBER BM-7 VARIETY NAME M91-467 TEMPORARY OR EXPERIMENTAL DESIGNATION

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place the appropriate number that describes the varietal character of this variety in the boxes below.

Place a zero in the first box (e.g.

9	9	9
---	---	---

 or

0	9
---	---

) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used:

Please answer all questions for your variety; lack of response may delay progress of your application.

A. MORPHOLOGY

Seed Shape:

<table border="1"><tr><td>1</td></tr></table>	1	1 = Spherical (L/W, L/T, and T/W ratios < 1.2)	2 = Spherical-Flattened (L/W ratio > 1.2; L/T ratio < 1.2)
1			
	3 = Elongate (L/T ratio > 1.2; T/W ratio < 1.2)	4 = Elongate-Flattened (L/T ratio > 1.2; T/W ratio > 1.2)	

Seed Coat Color:

<table border="1"><tr><td>1</td></tr></table>	1	1 = Yellow	2 = Green	3 = Brown	4 = Black	5 = Other (Please Specify) _____
1						

Seed Coat Luster:

<table border="1"><tr><td>2</td></tr></table>	2	1 = Dull	2 = Shiny
2			

Seed Size:

<table border="1"><tr><td>0</td><td>8</td></tr></table>	0	8	grams/100 seeds
0	8		

Hilum Color:

<table border="1"><tr><td>2</td></tr></table>	2	1 = Buff	2 = Yellow	3 = Brown	4 = Gray	5 = Imperfect Black
2						
	6 = Black	7 = Other (Please Specify) _____				

A. MORPHOLOGY (Continued)

Cotyledon Color:

1 = Yellow 2 = Green

Seed Protein Peroxidase Activity:

1 = Low 2 = High

Hypocotyl Color:

1 = Green ('Evans' or 'Davis') 2 = Green with Bronze Bands below Cotyledon ('Woodworth' or 'Tracy') 3 = Light Purple below Cotyledons ('Beeson' or 'Pickett 71') 4 = Dark Purple extending to unifoliate leaves ('Hodgson', 'Coker', or 'Hampton 266A')

Leaf Shape:

1 = Lanceolate 2 = Oval 3 = Ovate 4 = Other (Please Specify) _____

Flower Color:

1 = White 2 = Purple 3 = White with a Purple Throat

Pod Color:

1 = Tan 2 = Brown 3 = Black

Pubescence Color:

1 = Gray 2 = Brown (Tawny) 3 = Light Tawny

Plant Habit:

1 = Determinate 2 = Semi - Determinate 3 = Indeterminate 4 = Intermediate

Maturity Group:

<input type="text" value="0"/> <input type="text" value="3"/>	1 = 000	2 = 00	3 = 0	4 = I	5 = II
	6 = III	7 = IV	8 = V	9 = VI	10 = VII
	11 = VIII	12 = IX	13 = X	14 = XI	15 = XII

Maturity Subgroup:

Please enter a value from 0 - 9

B. DISEASE REACTIONS

0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

Bacterial

Bacterial Pustule (*Xanthomonas campestris* pv. *glycines* (Nakano) Dye)

Bacterial Blight (*Pseudomonas syringae* pv. *glycinea* (Coerper) Young, Dye, & Wilkie)

Wildfire Blight (*Pseudomonas syringae* pv. *tabaci* (Wolf & Foster) Young, Dye, & Wilkie)

B. DISEASE REACTIONS (Continued)

0 = Not Tested

1 = Susceptible

2 = Resistant

3 = Tolerant

Fungal

Brown Spot (*Septoria glycines* Hemmi)

Frogeye Leaf Spot (*Cercospora sojina* Hara)

race 1
 race 5

race 2
 race 6

race 3

race 4
Other (Please Specify) _____

Target Spot (*Corynespora cassiicola* (Berk. & Curt.) Wei)

Downey Mildew (*Peronospora trifoliorum* var. *manchurica* (Naum.) Syd. ex Gäum)

Powdery Mildew (*Microsphaera diffusa* Cke. & Pk.)

Brown Stem Rot (*Phialophora gregata* (Allington & Chamberlain) W. Gams.)

Stem Canker (*Diaporthe phaseolorum* (Cke. & Ell.) Sacc. var. *caulivora* Ahow & Caldwell)

Pod and Stem Blight (*Diaporthe phaseolorum* (Cke. & Ell.) Sacc. var. *sojae* (Lehman) Wehm.)

Purple Seed Stain (*Cercospora kikuchii* (T. Matsu. & Tomoyasu) Gardener)

Rhizoctonia Root Rot (*Rhizoctonia solani* Kühn)

Phytophthora Root Rot (*Phytophthora megasperma* Drechs. f. sp. *glycinea* (Kuan & Erwin))

race 1
 race 2
 race 3
 race 4
 race 5
 race 6
 race 7

race 8
 race 9
 race 10
 race 11
 race 12
 race 13
 race 14

race 15
 race 16
 race 17
 race 18
 race 19
 race 20
 race 21

race 22
 race 23
 race 24
 race 25
 race 26
Other (Please Specify) _____

Bud Blight (Tobacco Ringspot Virus)

Yellow Mosaic (Bean Yellow Mosaic Virus)

B. DISEASE REACTIONS (Continued) 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

Cowpea Mosaic (Cowpea Chlorotic Virus)

Pod Mottle (Bean Pod Mottle Virus)

Seed Mottle (Soybean Mosaic Virus)

Nematode

Soybean Cyst Nematode (*Heterodera glycines* Ichinohe)

race 1

race 4

race 9

race 2

race 5

race 14

race 3

race 6

Other (Please Specify) _____

Lance Nematode (*Hoplolaimus columbus* Sher)

Southern Root Knot Nematode (*Meloidogyne incognita* (Kofoid & White) Chitwood)

Northern Root Knot Nematode (*Meloidogyne hapla* Chitwood)

Peanut Root Knot Nematode (*Meloidogyne arenaria* (Neal) Chitwood)

Reniform Nematode (*Rotylenchus reniformus* Linwood & Olivera)

Javanese Nematode (*Meloidogyne javanica* (Treub) Chitwood)

Other Nematode (Please Specify) _____

C. PHYSIOLOGICAL RESPONSES 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

Iron Chlorosis on Calcareous Soil

Phosphorus

Other (Please Specify) _____

Boron

Aluminum

Salt

Drought

D. INSECT REACTIONS

0 = Not Tested

1 = Susceptible

2 = Resistant

3 = Tolerant

☐ 0 Mexican Bean Beetle (*Epilachna varivestis* Mulsant)

☐ 0 Potato Leaf Hopper (*Empoasca fabae* (Harris))

☐ Other (Please Specify) _____

E. HERBICIDE REACTIONS

0 = Not Tested

1 = Susceptible

2 = Resistant

☐ 0 Metribuzin

☐ 0 Bentazone

☐ 0 Sulfonylurea

☐ 1 Glyphosate

☐ 0 Glufosinate

☐ 0 Pendimethalin

☐ Other (Please Specify) _____

F. TRANSGENIC COMPOSITION

Has the development of the subject variety included the insertion of genetic material from an organism other than a soybean, or, the removal of genetic material from the application variety?

If yes, please complete the following information requests*. Use additional pages if necessary.

☐ YES ☒ NO

1. Please state the vector's name:
2. Please state the vector components:
3. Please describe the genetic material successfully transferred into the subject variety:
4. Please describe the insertion protocol:

* A literature citation(s) explaining the four information requests above may be an acceptable alternative to completion of the "Transgenic Composition" portion of this form.

G. BIOCHEMICAL MARKERS

Please describe any biochemical information here, which you believe will be helpful in further describing the subject variety (e.g. Simple Sequence Repeats, Restriction Fragment Length Polymorphisms, Isozymic Characterization). Use additional pages if necessary.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

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EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S) Minnesota Agricultural Experiment Station University of Minnesota	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER M91-467	3. VARIETY NAME BM-7
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) 277 Coffey Hall 1420 Eckles Avenue St. Paul, MN 55108-6026	5. TELEPHONE (include area code) 612-625-4211	6. FAX (include area code) 612-624-7724
7. PVPO NUMBER 200100174		

8. Does the applicant own all rights to the variety? Mark an "X" in appropriate block. If no, please explain. ☒ YES ☐ NO

9. Is the applicant (individual or company) a U.S. national or U.S. based company? ☒ YES ☐ NO
If no, give name of country

10. Is the applicant the original owner? ☒ YES ☐ NO If no, please answer one of the following:

a. If original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. national(s)?
☐ YES ☐ NO If no, give name of country

b. If original rights to variety were owned by a company(ies), is(are) the original owner(s) a U.S. based company?
☐ YES ☐ NO If no, give name of country

11. Additional explanation on ownership (if needed, use reverse for extra space):

The University of Minnesota is the employer of the breeder who developed BM-7.

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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